

2010

Respirator Review Facilities Division Self-Assessment



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Facilities Division Self-Assessment Review

Respirator Program

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Jennifer Ridgeway


Facilities Division Director

Executive Summary

Recent safety inspection findings indicate that the Facilities Division should examine its respirator program to ensure divisional compliance and to confirm respirator requirements are implemented as intended. To accomplish this task, the Facilities Division interviewed 29 employees including Craft Workers, Leads, Supervisors, and Managers over the course of this review, conducted field inspections of respirator equipment, and reviewed training and supporting documentation.

Overall, the Facilities Division Craft Worker's respirator use was found to be very good in the areas that were evaluated. With one exception, every employee interviewed clearly understood the requirements and process for cleaning, storing and testing their half-face and full face respirators. All respirators that were examined were found to be stored in protective locations where they could not be bent or misshaped. A small number of respirators were discovered in worn and damaged bags that contained small holes. Three respirators were found to be mildly dirty. One Craft Worker in the field was found to possess an excessively dirty respirator. The proper disposal and storage of dust masks was found to be the most frequently observed issue. Many Craft Workers expressed confusion about cartridges and their service life.

Virtually all of the employees interviewed know they should call EH&S Industrial Hygiene if and when they have questions, concerns or need to discuss respirator use on an upcoming job. Training levels with one exception for EHS 0310 (respirator training) and EHS0318 (respirator supervisor training) are 100%.

Conditions Found During Review	Total # items viewed	# of Times found
Dust Mask not stored correctly –Employee and supervisors generally not aware of storage requirements for dust masks	11	8
Half Face with mild dust/dirt	11	4
Respirators with worn/torn storage bag	18	5
Respirators clean and correctly stored	19	14
Cartridges with past due service life	19 sets	2 sets
PPE stored with trash in bag	1	1
Half Face in very dirty condition	12	1

Introduction

The Facilities Division strives to maintain a work environment that will not adversely affect the health, safety, and well-being of its employees. The purpose of the Laboratory Respiratory

Protection Program is to establish the procedures and requirements necessary to ensure that all affected individuals are protected from exposure to respiratory hazards that may be present in the work place.

The goal of this review was to ensure the Respiratory Protection Program is functioning among the Facilities Division Craft Workers as intended and to determine if there are any improvements, noteworthy practices, or corrective actions to be made.

This review examined all five ISM core values as they pertain to craft workers use of respirators.

- **Define the work.** During interviews employees discussed the processes and controls used to determine when to use a respirator and when to call a Subject Matter Expert (SME).
- **Analyze the Hazards.** Employees were interviewed about their different respiratory protection options i.e., voluntary dust mask or half face-full face respirator and how the correct choice is made. Employees discussed respirator requirements and work conditions that trigger respirator use.
- **Develop Controls.** The respirator training and medical status was reviewed as well as JHAs for appropriate controls for each authorized user.
- **Perform the Work.** Field reviews and interviews with employees discussed how those employees have performed respirator jobs in the past. Respirator conditions were spot checked in the field.
- **Obtain feedback.** Employee's feedback was gained during the interviews and field checks.

Focus Area Description

Recent safety inspection findings (Lessons Learned # LL 10-0012) indicated that the Facilities Division should take a look at the respirator program to ensure divisional compliance and to confirm respirator requirements are being implemented as intended. The Lessons Learned dated May 27, 2010, is titled "Dust Masks (Filtering Facepieces) are Respirators, too!" describes an incident where 2 filtering facepiece respirators (dust masks) were not sealed overnight in a Ziploc bag. The dust masks were left out in the open and one of the dust masks was left with a Makita portable band saw sitting on top. Respirators not stored properly could result in reduced levels of respiratory protection provided to the user.

The purpose of the review is to scrutinize the correct/incorrect usage of respirators once they have been assigned to Facilities Division Craft Workers and to determine if the program is implemented as intended. Many aspects of the Craft Workers use of respirators were

examined with particular interest placed on the storage and condition of Craft Workers respirators.

Because respirators used on construction sites are subject to daily EH&S inspection, this review did not include respirators used by subcontractors, or work on construction sites. This review also did not include the medical approval process for users or the Industrial Hygiene process for selecting a respirator.

Current Requirements

Any Laboratory employee who wears a respirator shall:

- Maintain a close shave as necessary to ensure the proper fit of the respirator for health and safety purposes
- Use the issued respirator in accordance with the Respiratory Protection Program, the Respirator training provided by EH&S, and the Training Review Guidelines provided at each respirator training
- Inform his/her supervisor, Industrial Hygiene, or Health Services, of any medical signs or symptoms experienced, that may be related to respiratory use
- Protect respiratory protective equipment from damage or modification and ensure that respirators are not disassembled or altered in any way other than for cleaning, or by changing cartridges or filters
- Keep respirators clean to ensure they are free from contamination that could affect the fit and compromise personal protection
- If respirators become contaminated, assure that they are destroyed or cleaned before they are re-used or returned to the Respirator Program
- Report any malfunction of respiratory protective equipment to the Respirator Program Administrator
- Return malfunctioning or damaged respirators to the Respirator Program administrator for repair or replacement
- Use only issued respirators for which he/she is trained and fitted
- Use the correct type of respirator and filter cartridge for the hazard involved, and contact Industrial Hygiene or the Respirator Program Administrator if they have questions regarding cartridge selection
- Stop work immediately and change filters/cartridges if breathing resistance increases due to filter loading or if chemical breakthrough is detected
- Inform his/her supervisor and/or the EH&S Division Liaison when new situations arise where respiratory protective equipment may be necessary

- Return respirator to the Industrial Hygiene (IH) Lab in B 75 B in person or through the LBNL mail when respirator use is no longer required or upon leaving employment at Berkeley Lab

Supervisors or work leads, who direct the work of respirator wearers, shall:

- Complete EHS0318, Respirator Supervisor Training
- Ensure that employees assigned to wear respirators for a given task or job are clean-shaven before respirators may be worn
- Identify, with the assistance of the EH&S Industrial Hygiene and Radiation Protection Groups, those employees who may need respiratory protective equipment
- Ensure that employees required to wear respiratory protective equipment receive initial and subsequent medical evaluation, fit testing, and training, as required
- Ensure that employees maintain respiratory equipment in a clean and sanitary condition
- Ensure that respirators are returned to the Respiratory Protection Program Administrator when employees leave the Lab
- Ensure that employees receive medical reevaluations if they report medical signs or symptoms that are related to ability to use a respirator
- Ensure that employees receive medical reevaluations if the supervisor or principal investigator feels that the employee needs to be reevaluated
- Ensure that employees receive medical reevaluations if a change in workplace conditions such as physical work effort, protective clothing, or temperature, may result in a substantial increase in the physiological burden placed on the employee

Assessment Scope

The scope of this divisional Self-Assessment included a review of compliance and performance of the EH&S Respiratory Protection Program by Facilities Division Craft Workers. The scope includes:

- Interview Facilities Craft Workers
- Interview Craft Supervisors
- Meet with Subject Matter Experts in respiratory protection
- Review Lessons Learned
- Review Corrective Action Tracking System for possible corrective actions concerning respiration
- Review training status
- Field review of existing respiratory equipment

Assessment Results

Overview of Facilities Division Respirator use:

Welding

The Facilities Division no longer performs either Arc or Stick welding. All welding equipment for these tasks has been transferred to the Engineering Division.

The Facilities plumbers do perform non-lead soldering and brazing and 3 of the plumbers are authorized to work with an Orbital Welder.

Asbestos

The Facilities Division has 7 employees who are Asbestos Level 3 Workers. These individuals work with asbestos that is limited to what can fit into a 60" x 60" asbestos waste bag or glove bag per day. Three of the Asbestos Level 3 Workers were interviewed during this review. These employees stated that it had been about 1 ½ -2 years since they had used their full face respirators for asbestos work. Because these workers are limited to the 60" x 60" waste bag per day most asbestos work is contracted out.

SCBA

Facilities Division currently has no SCBA (Self Contained Breathing Apparatus) or air line respirators issued for their use at this time.

Painters

The Facilities Division paint shop uses only latex paint for most interior surfaces. Exceptions would only be for special circumstances and applications which would require a task hazard analysis and consultation with an Industrial Hygienist.

The painters primarily use their respirators during spray painting and sanding.

Most large project exterior painting is contracted out. The painters may paint exterior doors or handrails.

Field Reviews

The EH&S Respirator Program Subject Matter Experts (SME) attended most of the field reviews and discussed observations with employees. Some of these employees were

randomly interviewed in the field and in their shops. Other employees were prescheduled for interviews.



Photograph # 1
SME discussing half face respirator with employees

During field reviews the SME replaced several worn bags, collected the tool crib attendant's respirator, and replaced one respirator issued to a painter. Removal of the Tool Crib attendant's respirator occurred following a discussion of the Tool Cribs attendant's job duties. The Tool Crib attendant's supervisor agreed that cleaning HEPA filters is no longer a task of this position and therefore no longer needs the use of respiratory protection. The Tool Crib attendant's JHA was amended by the Safety Coordinator.

The painter's stored respirator was removed from service and the painter was issued an entirely new respirator, cartridges, and storage bag. The respirator was heavily covered with paint, and paint chips had migrated into the face piece. The cartridges discovered in the painter's storage bag had expiration dates of 2007 and 2009. Neither of the expired sets of cartridges was attached to the respirator. The respirator storage bag was covered with paint on the interior and exterior surfaces. The SME noted that this particular employee has previously had at least one other dirty respirator. The painter expressed concern about the wasting resources by taking the unused but expired cartridges out of service.



Photograph #2
Condition of Painters respirator storage bag



Photograph # 3
Painters Respirator

The SME was unsure where the painters expired cartridges had come from, because the expired cartridges had not been present during the previous respirator exchange.

Three respirators were found to be mildly dirty. In each case the Respirator Subject Matter Expert (SME), who accompanied the Division Safety Coordinator on the inspections, discussed this issue with the employees and pointed out the fibers or dust found on the respirator.

Dust mask storage was generally very poorly understood. Dust masks were discovered sitting in tubs of tools, hanging on baollards, and truck dashboards. One employee, when told that Dust Masks that are not intended for single use need to be stored in a zipped plastic bag, said she did not have a Ziploc type plastic bag but believed she could use an old lunch bag.

Each employee interviewed correctly explained the reasons why and when they would need to wear a half-face or full face respirator. There are 30 Facilities Division Craft Workers who have completed the EHS0310 training, medical approval and fit test necessary to acquire respirators. At the start of the review there were 5 employees listed in the JHA database that have expired EHS310 respirator training. One of these employees (Craft worker 1) had recently returned from extended medical leave during which time his training and fit test had expired. Once the updates to the JHA had been made the training level with the one exception (Craft Worker 1) is 100%. On occasions when Facilities Division employee's respirator training has expired the EHS Subject Matter Expert sends notification to the supervisor (Document A).

Craft Worker 1 was further issued a Facilities Division Respirator Stop Work Notification (Document B). Facilities Division employees are sent Divisional Stop Work Notifications on a monthly basis, as applicable, to ensure that the specific work noted in their critical tasks will not continue until training has been completed.

Craft Worker 1 said during his interview that his stop work notification had been waiting for him when he first returned to work and he understood that he is not authorized to use a respirator or perform work requiring a respirator until he completed his respirator training obligations.

As part of the review, the work tasks of each of the remaining 4 employees (with expired respirator training) were reviewed. Their supervisors agreed that the work had changed and the workers no longer performed tasks that require respiratory protection and subsequently respirator use was removed from the employees' individual JHA's.

There are 144 Craft Workers who have completed EHS0311 training for voluntary use of a Dust Mask. Thirty-nine Facilities Division Managers, Supervisors, and Leads have completed

EHS0318 Respirator Supervisor training. All required Managers, Supervisors, or Leads have completed this training.

Each Craft Worker with facial hair understood the requirements to be clean shaven prior to respirator use and each said that they keep a razor at work should they need to shave prior to respirator use. Most Craft Workers said that generally they know ahead of time when respirator use is planned and shave accordingly.

Some supervisors were unsure which if any of their direct reports has a respirator in their possession. Because this review was taking place with a change in the Facilities organizational structure, this uncertainty was not expected. Supervisors will need to acquaint themselves with the tasks and Job Hazard Analyses (JHAs) of their new employees.

With one exception every employee interviewed clearly understood the requirements and process for cleaning, storing and testing their half-face and full face respirators. All respirators that were examined were found to be stored in protective locations where they could not be bent or misshaped. A small number of respirators were discovered in worn and damaged bags that contained small holes. Many Craft Workers expressed confusion concerning cartridges and their service life. There was a strong knowledge base among the employees that they should call EH&S Industrial Hygiene Group if and when they have questions, concerns or need to discuss respirator use on an upcoming job.

In February 2009 Facilities Division Labor Shop employees were requested to mix a 2 part epoxy for a job requested by another division. The other division said they had always been mixing the epoxy without the use of a respirator. The Labor Shop employees reviewed the MSDS sheets and determined that the mixing of the material presented a significant hazard to workers and occupants of the immediate area. The Labor Shop employees immediately contacted Industrial Hygiene to review the MSDS. The Industrial Hygienist agreed that using the epoxy required respirator use. These Facilities Division Labor Shop employees received a Spot Award for bringing the issue forward and identifying a potentially hazardous use of a chemical. This is a clear example involving Facilities Division employees identifying a respiratory hazard unidentified by another division.

Overview of conditions found during review:

Conditions Found During Review	Total # items viewed	# of Times found
Dust Mask not stored correctly –Employee and supervisors generally not aware of storage requirements for dust masks	11	8
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Respirators with worn/torn storage bag	18	5
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PPE stored with trash in bag	1	1
Half Face in very dirty condition	12	1

Divisional Findings

During this review 29 employees were interviewed and a total of 19 full or half face respirators were examined in the field.

The two most significant finding were:

- Expired cartridges
- Respirator stored in dirty condition-repeat offender

Divisional Observation

The following observations were derived from our interviews and physical inspections of field usage and conditions:

- Employees seem uncertain about cartridge shelf life
- Employees are confused about venting the bag or not venting the storage bag
- Tool Crib attendant needed respirator use requirement removed from his JHA-removed same day
- Instances of Dust Masks sitting on equipment/lockers, not in clean bag (photo # 5)
- Employees do not always have Ziploc plastic bags for dust masks (photo # 5)
- Respirators stored in worn bags with holes. Most bags were replaced by EH&S on the spot (photo # 6)
- Some respirators mildly dirty (photo # 7)
- Custodian closet dust mask was in plastic bag next to safety glasses and trash (photo # 8)

Noteworthy Practice

We found the following to be noteworthy:

- Facilities Division use of roto hammers with vacuum attachment that collects dust at sufficient levels that respiratory protection may not be necessary
- Supervisors have ordered stronger Tupperware like containers for respirator storage

Recommended Corrective Actions

The following recommended correctives have been entered into the Corrective Action Tracking System (CATS) data base:

- IH will assess options to better communicate types of cartridges available and when to replace gas or vapor cartridges (Responsible person: Herb Toor, CATS 8207-1)
- IH will strengthen existing discussion on venting and dust mask storage in respirator training (Responsible person: Herb Toor, CATS 8207-2)
- All Facilities Supervisors will order Tupperware like containers for respirator storage (Responsible persons: Walt Flannery/Mike Marchese, CATS 8207-3 & 8207-4)
- Add respirator storage/use to the Supervisor/Manager/Lead safety inspection checklist (Responsible person: Janice Sexson, CATS 8207-5)
- Dust masks will be issued with storage bag (Responsible persons: Walt Flannery/Mike Marchese, CATS 8207-6 & CATS 8207-7)

Conclusions

This self assessment led us to reach the following conclusions about the Facilities Division's implementation of the respiratory protection program:

- The Facilities Division has a robust respirator program that is functioning primarily as intended.
- Training levels with one exception are 100%. Craft worker 1 is enrolled in EH&S310
- A few employees JHAs were updated to reflect their changed work status.
- The Facilities Division craft worker's general understanding and use of respirators is correct and informed.

- Supervisors/Leads need to ensure during their safety inspections that the general condition and use of employee's respirators meets all requirements.
- Supervisors are responsible for monitoring and remaining aware of Craft Workers respirator use during their safety inspections. Supervisors are responsible for counseling and mentoring any Craft Worker who do not meet their expectations for respirator use.
- Because a number of respirators were discovered with worn and torn storage bags, supervisors will consider ordering sturdier containers for respirator storage.
- The most frequently noted issue concerned dust masks found abandoned in a wide variety of incorrect locations. Many employees, work leads, and supervisors said they were surprised to hear that dust masks had storage requirements. One employee after hearing this offered to use her lunch bag to store her dust mask. Employees will be given access to zipped plastic bags as dust masks are issued to preventing employees from using old lunch bags to store their PPE.
Employees are confused about the types of cartridges and their service life.
- Because storage, cartridge selection and service life issues were discovered so frequently, the Industrial Hygiene Respirator SME will emphasize these sections of his training program.

Supporting Documentation

Documents reviewed include:

- JHA Training records in the database
- Corrective Action Tracking System
- Lessons Learned
- Respiratory Protection Program Revision 2.3
- LBNL/PUB 3000 Health and Safety Manual (Chapter 4.13 Respirator Protection)
- LBNL/PUB 3000 Health and Safety Manual (Chapter 31 Non-Construction Safety Assurance for subcontractors, vendors and guests at LBNL facilities)
- LBNL/PUB 3000 Health and Safety Manual (Chapter 6 Safe Work Authorizations)
- Corrective Action Plan DOE Berkeley Site Office Review of Lawrence Berkeley National Laboratory Respiratory Protection Program
- Occurrence Reports
- LBNL/PUB 3000 Health and Safety Manual (Chapter 10 Construction Safety Manual Administrative Policies)
- Crosswalk document containing OSHA/ANSI standards

Appendix

Lines of Inquiry

The following 29 LBNL personnel were interviewed to better evaluate the respirator program as understood and used by the Facilities Division Craft Workers.

Field Interviews

Latasha Valrey	Grounds Keeper
Mark Huebschle	Plumber Lead
Wylie Walters	Tool Crib attendant
Pete Andreas	HVAC
Curtis Cariveau	Carpenter
David Smith	Carpenter
Dave Freitas	Laborer
Victor Solomon	Laborer
Ignacio Sanchez	Painter
Victor Haskett	Painter
Brian Smith	Painter
Joey Moser	Plumber
Richard Doty	Maintenance Lead
Joe Cullen	Painter
Jose Soriano	Laborer

Supervisor/Work lead/Employee Interviews

Michael Elizalde	Supervisor Technical Support
Stacy Garrett	Laborers Lead
Ray Estrada	Electrical Lead

Jessie Knight	Plant Maintenance Technician
Jeffrey Knight	Plant Maintenance Technician
Mark Huebschle	Plumber Lead
Alan Ladwiniec	Supervisor Corrective Maintenance
Michael Jang	Preventative Maintenance Supervisor
Joe Griffin	Custodial Supervisor day shift
George Rosas	Custodial Supervisor swing shift
Julian Aki	Carpenter
Hugo Moran	Laborer
Jim Murphy	Supervisor Project Support
Bill Mattson	Supervisor Project Support
Joey Moser	Plumber
Walt Flannery	Maintenance Manager

Employee Interviews

The focus of the interviews sought to answer the following questions:

1. Where do you store your respirator?
2. When was the last time you used your respirator?
3. How do you know when you need to use your respirator?
4. When do you commonly use your respirator?
5. If you need to use a respirator what is the process you follow?
6. What is the process you follow if you are working and then discover that the job has changed and you need to use a respirator?
7. How often do you use a respirator?
8. Are you familiar with hazards of the chemicals that you commonly use?
9. How do you make the determination that you need to use a respirator?
10. How do you clean your respirator?
11. Explain the type of respirator and cartridges that you use?

12. Tell me about any previous task where you used a respirator that may or may not have any concerns or issues?
13. What were the issues or concerns?

Assessment Methodology

This review included:

- Interviewing employees and line supervisors to identify compliance with the respiratory program
- Meet with SME
- Review training records
- Field review of workers using respiratory protection



Photograph # 4
Dust mask hanging in custodial closet Building 76



Photograph # 5
Dust mask left hanging without plastic bag protection B 76



Photograph # 6
Half Face Respirator in worn bag with some debris



Photograph # 7
Mild dust accumulation on stored half face respirator



Photograph # 8
Custodial closet -bag containing Dust Mask, safety glasses and trash

Document A-Email Notification from SME

Bill,

My understanding is that Julian is currently on leave. Please have him contact me, when he returns, to schedule his respirator fit test and training. He would not be authorized to conduct any work requiring the use of a respirator until his fit testing and training are current. Thanks,

Herb

----- Forwarded message -----

From: **Herb Toor** <hstoor@lbl.gov>

Date: Tue, Jun 29, 2010 at 4:09 PM

Subject: Respirator fit test due this week

To: Julian Aki <jraki@lbl.gov>

Cc: William Mattson <wdmattson@lbl.gov>

Julian,

Your respirator fit test and training expire this Friday. Call me so that we can schedule this.
Thanks,

Herb

--

Herb Toor
Lawrence Berkeley National Laboratory
EH&S - Industrial Hygiene Group
510/486-5918

Document B-Email Stop work Notification from Facilities Division Safety Coordinator

The following persons in your group have expired critical training. This email is a stop work notification for any tasks that involve the training in which they are deficient. Work involving these tasks will stop until their training obligations have been met. If any of this information is incorrect please let me know so that I can make efforts to update the training database. If this information is correct please ensure that your employees are enrolled in the following classes. If any of these classes are not correct for any of these individuals then steps need to be taken to correct their JHA. Please inform your employees of this stop work notification.

EHS0310 - Respirator Training

Floyd Lee Colton -3rd month's notification

Thanks

Janice